

Industrial Standardization

and Commercial Standards Monthly



November

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1937

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NOVEMBER
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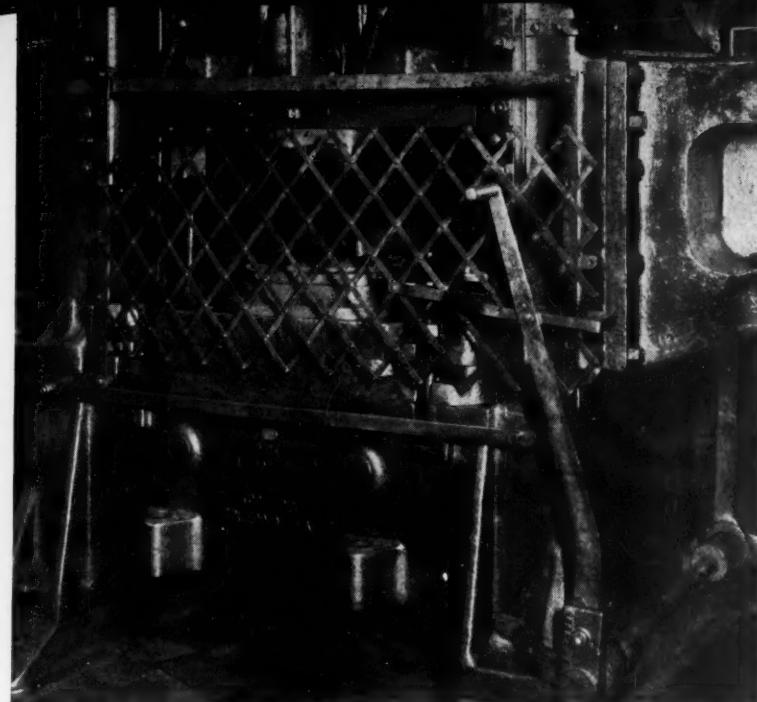
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Courtesy Geuder, Paeschke & Frey Co.

Fig. 1. Hand feed with gate guard both front and rear. Gate is collapsible, supported on rollers by horizontal guides, and is closed by operating lever. Gates are closed completely before friction clutch engages.

Injuries on Power Presses Can Be Prevented

NOT long ago a worker in a medium-sized machine shop had a momentary lull when there was a slight delay in trucking castings up from the foundry. Not having anything in particular on his mind, he walked over to the power press operated by one of his friends. He leaned his arm on the bed of the press, and to get more comfortable, he draped one foot on the operating treadle that was elevated just about the right height—approximately 10 inches above the floor. Down came the ram, mangling his right hand.

Certainly, he was "careless"; perhaps he deserved to be disciplined—but what about management? Why hadn't the ram been enclosed? Why hadn't the treadle been designed so that it could not be operated accidentally?

In the light of this accident it would have been easy to justify the expenditure of a considerable sum of money to prevent its recurrence.

More injuries occur on power presses than on any other machine used in industry, with the possible exception of circular saws, and so it is not

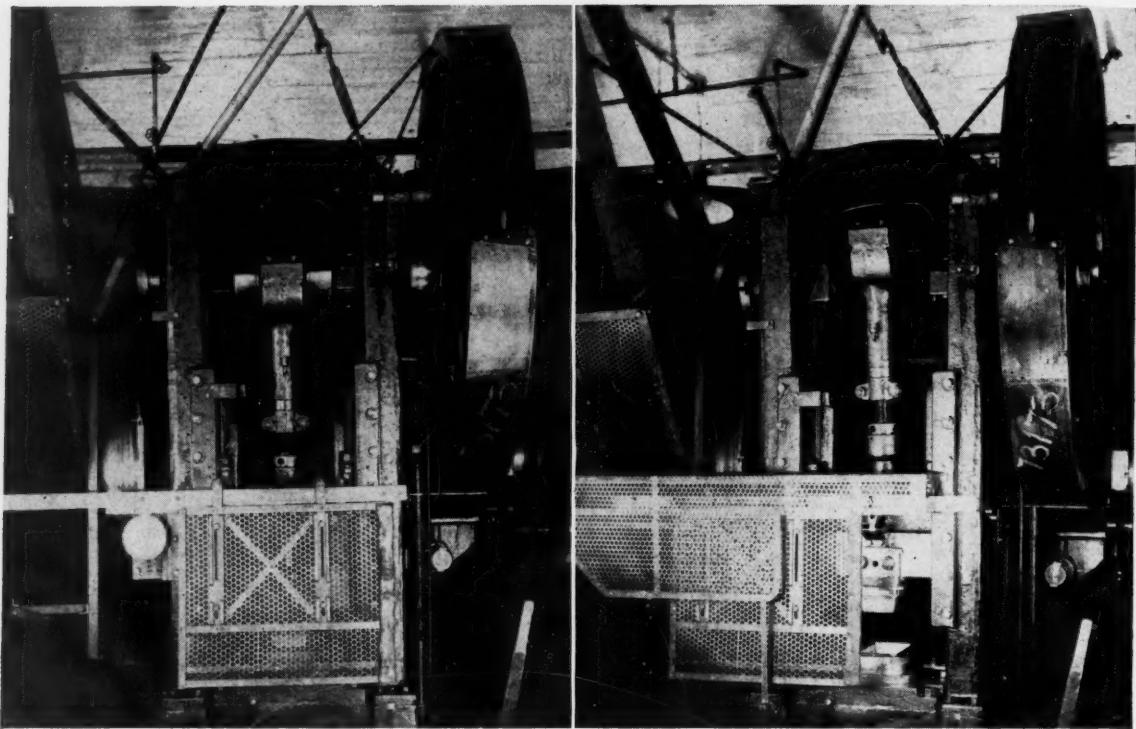
by
W. Dean Keefer¹

*Secretary, Sectional Committee on
Power Presses and Foot and Hand Presses*

surprising that shortly after its organization nearly 20 years ago, the American Standards Association selected power presses as one of the important subjects for a safety code.

The first edition of this code was published in 1926, and it presented a crystallization of accumulated industrial experience that continues to serve admirably as a guide for operating executives as well as for state authorities. Several

¹Director, Industrial Division, National Safety Council.



Photos Aluminum Goods Mfg. Co.; Courtesy National Safety Council

minor changes have been incorporated in a revision of the code that has just been approved and will soon be ready for distribution.

Very few changes have been made in the personnel of the technical committee responsible for this code, but we cannot fail to acknowledge the fine leadership of Carl B. Auel of the Westinghouse Electric & Manufacturing Company, who until his recent death served as chairman of the committee.

Injuries on power presses result from a great

Fig. 2. Manually fed press with horizontal sweep guard. At left, stationary section of guard removed to show how rack and pinion actuate slide section of guard. At right, sliding section partially closed.

variety of causes, but the majority occur at the point of operation when workers get their hands caught between the dies by the descending ram.

In general, the methods used to prevent such injuries are, first to make it unnecessary, and second to make it impossible for any operator to place his hands in the danger zone. But the achieve-

Photo General Electric Co.; Courtesy National Safety Council

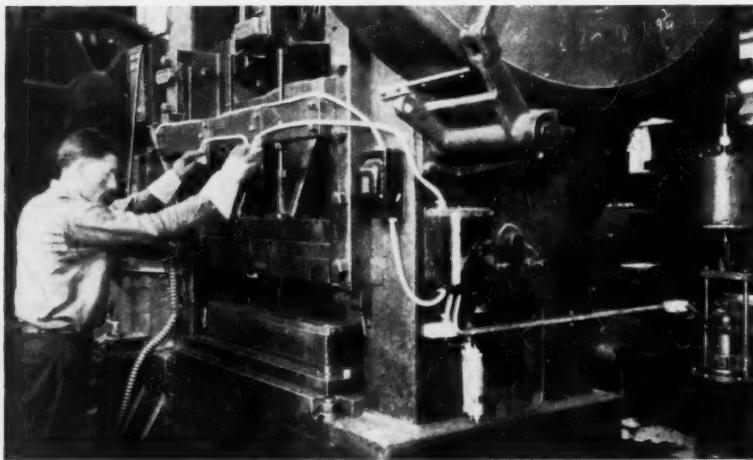


Fig. 3. Power press into which material is fed by hand. Two-hand tripping device keeps both hands out of danger while ram is descending.

ment of these objectives is not simple, primarily because there are so many ways of feeding material into the presses.

Table 1 outlines the feeding methods that may be employed and indicates the preferred safeguards that should be provided to prevent injury to the operators.

Protection for Hand Feeding

Manual feeding is the least desirable method, but if used it is necessary either to enclose the ram or to limit the ram stroke, to provide a gate guard or a two-handed tripping device, a sweep guard or special hand tools.

Ram enclosures are provided to keep the operators' hands out from between the dies. If used, each enclosure should fit the size and shape of the dies with which it is employed, so the die maker or die setter should be held responsible for its proper installation and use. (See FIG. 5 and 6.)

If the stroke of the ram does not exceed $\frac{3}{8}$ inch, there is not sufficient clearance for a finger to get under the ram, so further protection is unnecessary.

Gate guards and sweep guards are quite similar in operation, except that gate guards completely enclose the ram before the operating clutch can become engaged, (See FIG. 1), while sweep guards brush the operator's hands out of danger after the clutch has become engaged (See FIG. 2). Accordingly, gate guards are preferred to sweep



Courtesy National Safety Council

Fig. 4. Hand-fed power press. Operator used a special pair of pliers with soft noses so dies will not be damaged if pliers are caught by the descending ram.

guards. All guards of this type, however, should be actuated by the ram, but if they are attached to the tripping mechanism, a non-repeat attachment must be provided, too.

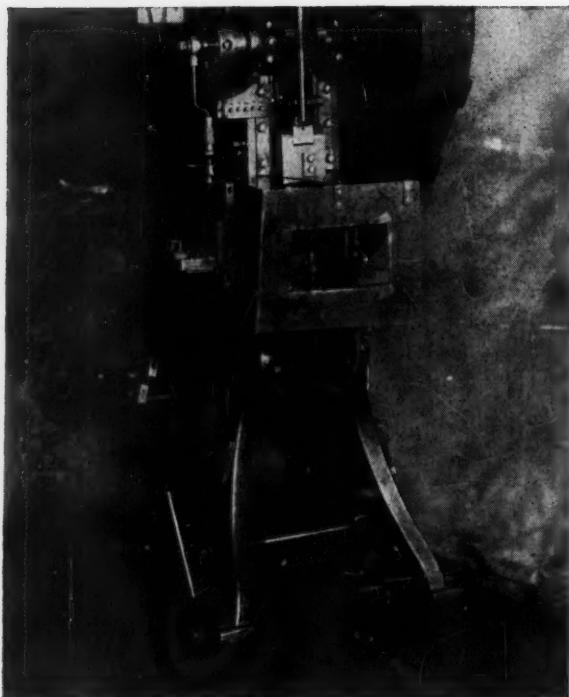
Two-hand tripping devices are used on a great many presses, particularly on slow-moving presses

Method of feeding press

Safeguarding required

1. Automatic feed.....	Inclosure of ram or limitation of ram stroke or gate guard
2. Semi-automatic feed.....	Inclosure of ram or limitation of ram stroke or gate guard
3. Manual feed.....	Inclosure of ram or limitation of ram stroke or gate guard or two-hand tripping device or sweep guard or special hand tools

TABLE 1
Methods of Preventing Injuries on Power Presses



Courtesy National Safety Council

Fig. 5. Automatic roll feed with ram enclosure.

that form large objects such as parts for automobile bodies. (See FIG. 3.) These devices can be extended if a press is operated by two or more men, by installing four, six, or more operating valves or buttons, all of which must be operated simultaneously to trip the press. Non-repeat attachments are needed, as well as an arrangement preventing any operator from being caught under the ram after the press has been tripped.

Special hand tools, such as pushers, pickers, pliers, tweezers, forks, magnets, and suction discs, are permitted as a last resort if it is impracticable to provide other methods of feeding or other methods of guarding. They furnish protection if they are used by the operator, but strict supervision and discipline are required to enforce their use. (See FIG. 4.)

Develop Automatic Feeding

During recent years great advances have been made in perfecting various automatic and semi-automatic methods of feeding power presses. In automatic methods such a roll feed, push and pull feed, and plunger feed, material is placed between the dies in such a manner that the attention of an operator is not required at each stroke of the ram. (See FIG. 5.) Semi-automatic feeding methods, such as by chute, slide, sliding dies, dial,

and revolving dies, do require the attention of the operator at each stroke of the ram. (See FIG. 6.) All these methods make it *unnecessary* for the operator to place his hand in the danger zone, but they require safeguarding either by ram enclosure, by limitation of the ram stroke, or by gate guard to make personal injury *impossible*.

A small percentage of power press injuries occurs at points other than between the dies. Such injuries can be prevented by requiring press operators to wear goggles; by enclosing all belts, pulleys, fly wheels and gears; by providing a device to hold the fly-wheel or pulley in case the shaft should break; and by installing and maintaining safe electrical equipment.

Injuries on power presses can be prevented. It is, of course, important that the operators be trained to do their work in a safe manner, but it is still more important for the management to employ engineering skill in actually making every power press job fool-proof.

Fig. 6. Semi-automatic feed; revolving die with ram enclosure.

Courtesy National Safety Council



States Recognize National Standing Of Safety Code for Power Presses

The American Standard for Power Presses and Foot and Hand Presses, as revised in 1926, is still up-to-date and effective for preventing accidents, the technical committee in charge decided recently. With a few minor changes a new edition of the code has now been approved by the American Standards Association.

Recognizing the national standing of this American Standard safety code as developed by a widely representative committee under the procedure of the American Standards Association, the Pennsylvania Department of Labor and Industry has adopted it as its regulations. The States of Maryland and New Jersey have also adopted it, and Wisconsin, Iowa, Nebraska, Ohio, Oklahoma, and Oregon are using it as the basis for their regulations.

Approval of the 1937 edition was given by the American Standards Association on the recommendation of the following committee, and of the National Safety Council. The Council has the administrative leadership for the work.

The committee members, representing many organizations concerned with various phases of this safety problem, are:

*W. Dean Keefer, National Safety Council, Secretary
American Society of Mechanical Engineers, J. B.
Chalmers
American Society of Safety Engineers, Engineering
Section, National Safety Council, T. O. Meisner
Massachusetts Department of Labor and Industry,
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panies, W. J. Graves
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National Machine Tool Builders Association, Chas.
R. Gabriel, H. S. Putnam
National Metal Trades Association, Wm. H. Doo-
little
New Jersey Department of Labor, John Roach
Ohio Society of Safety Engineers, C. A. Briggs
Pennsylvania Department of Labor and Industry,
S. W. Homan
Underwriters' Laboratories, S. V. James
U. S. Department of Commerce, National Bureau
of Standards, J. A. Dickinson
U. S. Department of Labor, Alfred Peabody
Wisconsin Industrial Commission, R. McA. Keown*

C. B. Auel, National Safety Council, was chairman of the committee until his death in April, 1937.

44 Specifications, Tests, Definitions In 1937 A.S.T.M. Textile Standards

The American Society for Testing Materials has issued its 1937 compilation of its *Standards on Textile Materials*. All of the 44 standard specifications, test methods, and definitions issued by the Society on the subject of textiles are included in the book. A psychrometric table for relative humidity, combining accuracy and convenience, a section comprising 43 photomicrographs of common textile fibers, and a convenient yarn number conversion table are also given, as well as a proposed method of correction of breaking strength to standard regain.

Forty pages of the 306-page publication are devoted to abstracts (with figures and illustrations) of the eleven technical papers presented at

meetings of Committee D-13 during the past year.

New standards on wool tops (fineness), wool felt, wool and part wool fabrics, and volumetric determination of copper are included in this edition.

Standards in which changes were made during 1937 (also included in the 1937 edition) cover: cotton fibers, yarns and threads, tire fabrics; testing machines; definitions and terms; fiber identification; pile floor covering; and test for fastness to washing.

Copies are available from the American Society for Testing Materials, 260 S. Broad Street, Philadelphia, at \$2.00, in heavy paper binding.

World Unit of Radiation Adopted As the Standard in Curative Work

A STANDARD unit for measuring the amount of X-rays and radium to which patients are exposed in curative work was adopted for the physicians of the world by the Fifth International Congress of Radiology at Chicago, September 17.

This standardization will fill a need in the field of high-voltage X-ray and will make possible a more accurate comparison of data as to cures and other medical observations.

It was calculated and agreed upon by Dr. Lauriston S. Taylor of the National Bureau of Standards, Dr. Iser Solomon of Paris and Dr. G. Failla of New York, comprising a committee designated by the Congress for the purpose. Their conclusion was based largely on the work done at the Washington laboratory of the National Bureau of Standards by Dr. Taylor and Dr. George Singer, a co-worker.

Infinitesimal Quantity Set

Expressed in its simplest terms, the new "R" unit will be the amount of X-ray or radium rays required to cause the amount of air that can be held in a sewing thimble to give off one quadrillionth of one ampere of free electrical energy. An ordinary electric light uses about one ampere of electricity.

The unit, however, will be a standard constant in an equation in which all the other figures vary from patient to patient, as a physician, in applying it, must consider the nature of the tissue, the condition of the patient and other such variable factors.

For low voltage work and radium there has long been in existence an R unit, the letter being taken from the name of Roentgen, who discovered the X-ray forty years ago. But this unit was not entirely satisfactory and, with the development of machines of greater power, throwing high voltage beams, it became less so.

Suiting Standard to Machine

Dr. Taylor indicated that the new R unit might not remain standard very long.

"Within the past three years X-ray voltages have been more than doubled, there being several dozen X-ray plants in this country operating

at 400,000 volts and some half-dozen voltages from 600,000 to 1,200,000," he said.

"With this increase in voltage entirely new measurement problems have arisen, the solution of which is awaited before these new radiations can be safely utilized to their ultimate limit.

"To meet this demand the National Bureau of Standards has recently installed a 500,000 volt X-ray plant to provide a starting point on the problem, although it is generally recognized that they must ultimately have at least twice that voltage to keep abreast of the clinical demands for X-ray standards."

However, Dr. Taylor pointed out that the basic physical problem of measurement did not produce a great variation between the new and the old standards.

*By Craig Thompson.
To the New York Times.*

Window and Door Dimensions Added In Simplified Practice Recommendation

Masonry opening dimensions for stock windows and doors and items assembled from standard parts have been added to the Simplified Practice Recommendation for Solid Section Steel Windows, R72, in the revision now before industry for acceptance. Sizes and layouts for special items have also been included.

The original recommendation, which became effective in 1927, covered only industrial windows and heavy industrial doors. The revision brings the original recommendation into line with current practices, according to the announcement of the Division of Simplified Practice of the National Bureau of Standards. It enlarges the scope of the recommendation by the addition of new schedules covering casement windows for buildings of the higher classes, such as office, residential, institutional and monumental buildings; continuous, security, and double hung windows, and light industrial doors.

Mimeographed copies of the proposed revision may be obtained from the Division of Simplified Practice, National Bureau of Standards, Washington, D. C.

The History of Building Regulations¹

by

George N. Thompson

Chief, Building Codes Section
National Bureau of Standards
U. S. Department of Commerce

***Modern developments turn
to national codes—ASA com-
mittees seek basic standards***

WHEN Samuel Pepys looked out over the blazing ruins of London in 1666 and penned his account of the tragic events that were occurring, he recorded another incident of an age-old struggle in which man has tried to make adjustments between his need for safety and his capacity to provide it. From the time when he skulked in caves or erected rude tents to keep out the weather, man has always had to adopt some compromise between what was ideally suited for his shelter and what he could supply in view of the other demands made upon him. It is this ceaseless process of adjustment that underlies the making of building regulations today, a process in which we have succeeded measurably in pushing back the boundaries of technical ignorance.

London was not without building regulations at the time that Pepys wrote, nor were such regulations of recent date. Indeed, these regulations existed long before England was a known factor in the civilized world. Groping back into history, we can find very definite and authentic requirements at least two thousand years before Christ. We know from translations of clay tablets made in the populous and thriving city of Babylon that King Hammurabi dealt with such matters with the harshness of an Oriental despot. The following sections taken from his code may well have

influenced the builders of his time to look to their handiwork.

"229. If a builder has built a house for a man and his work is not strong, and if the house he has built falls in and kills the householder, that builder shall be slain."

"230. If the child of the householder be killed, the child of that builder shall be slain."

"231. If the slave of the householder be killed, he shall give slave for slave to the householder."

"232. If goods have been destroyed, he shall replace all that has been destroyed; and because the house that he built was not made strong, and it has fallen in, he shall restore the fallen house out of his own material."

"233. If a builder has built a house for a man, and his work is not done properly and a wall shifts, then that builder shall make that wall good with his own silver."

Large Population — Rules Needed

Hammurabi presided over a city where building conditions were ripe for regulation. It possessed a large population and extended over a wide area, estimated by the not-always-reliable Herodotus to be about 225 square miles. The fashioning of timber and the laying of brick had passed beyond crude experimental stages and were established arts in the creation of fixed habitations. The presence of a large number of

¹Abstract of article published in *Building Standards Monthly*, October.

people created those contracts of neighbor with neighbor that sooner or later in all urban communities require the laying down of rules of conduct. We do not know whether the growing of fig trees on the roofs, a common custom, created questions regarding live and dead loads, but we do know that all the essential problems were present that exist today when building regulations become a necessary feature of daily life. . . .

Rome Limited Height

Rome not only dealt with the twin problems of strength and of fire, but it gave attention to a third feature hitherto not emphasized—sanitation. The Rome of the emperors possessed all the evils of land speculation, overcrowding, and excessive building height that plague us today. In our laborious reading of wars in school days and in looking at pictures of temples raised to the gods, we have gained little in appreciation of what the city looked like where the everyday citizen worked and lived. It had numerous six and even seven-story walk-up apartment houses with shops on the ground floor, creating problems of building height and mixed occupancy that are common today. The upper stories were of flimsy combustible

construction. The streets were narrow and were frequently covered in part by overhanging upper stories. Fire and collapse were frequent occurrences. Carthage, Rome's great commercial and political rival, had similar conditions. With no modern fire-fighting system to cope with conditions, the conscientious building official of today transferred to that environment would have much to worry him.

The dangers were realized by the authorities of that day who issued regulations on the maximum height to which residential structures might be built. Thus the Emperor Augustine forbade the building of houses with a height of more than 70 feet and his edict was renewed by Nero and by Vespasian. . . .

In America, the familiar cycle of needs and dangers arising out of unregulated construction, followed by scattered laws and ordinances seeking to correct conditions, and then eventually by codes, has repeated in a span of some three hundred years the experiences of older countries that extended over a much longer period. The colonists took what building materials were at hand and at first were content with hastily improvised shelters. Early accounts tell of the fire that originated in log chimneys imperfectly protected

ASA Building Committee Suggests Closer Cooperation on Standards

Closer coordination between building code standards and other standards which have an interest to the building field will result if a suggestion just agreed upon by the Building Code Correlating Committee is adopted by the ASA Standards Council.

The Building Code Correlating Committee is supervising work on national building code proposals under the procedure of the American Standards Association. It is suggesting a closer working arrangement with the other general committees of the ASA which supervise mining, mechanical, electrical, safety, and consumer goods projects. To carry out such an arrangement it proposes that standards of interest to the building field prepared under the supervision of any of these committees be sent to the Building Code Correlating Committee for study in connection with related standards under its jurisdiction. Building

code standards would also be submitted to the other correlating committees for their consideration.

Some of the safety codes which might come under this arrangement would include, for instance, the Code of Lighting Factories, Mills, and Other Work Places; the Ventilation Code; and the Safety Code for Exhaust Systems.

The Building Code Correlating Committee is also suggesting the organization of three new sectional committees to work on standards for reinforced gypsum, for signs and billboards, and for requirements concerning roads. Committees already organized are working on standard building code requirements for fire protection and fire resistance; chimneys and heating appliances; light and ventilation; fire-extinguishing equipment; excavations and foundations; iron and steel; and administrative requirements.

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with a layer of mud. These experiences resulted in laws forbidding dangerous practices. . . .

The early part of the twentieth century witnessed a growing impatience with what was felt to be the slowness of building regulations to recognize the rapidly developing new methods of construction. This impatience with existing requirements and insistence on immediate recognition of new features as fast as they were introduced gradually built up the widespread belief that codes were a definite obstacle rather than a steady influence in the construction industry. To a certain extent this belief has been justified and yet we must remember that if all that the code demands is proof of adequate safety, it is doing no more than the mission for which it is created. Mere claims of adequacy for new materials and methods are no sufficient guarantee against maimed bodies and loss of life. The difficulty has lain in the lack of adequate machinery through which safety could be proved.

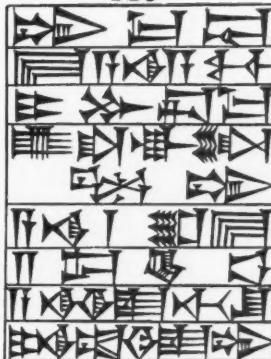
Scientists Act

Here, also, code history requires recognition of parallel developments in the professional and scientific field. The founding of the American Society of Civil Engineers in 1852, of the American Society for Testing Materials in 1902, and the later development of the Building Officials' Conference of America in 1914 and of the Pacific Coast Building Officials' Conference in 1922, provided the means for ascertaining facts about building materials and for the evaluation of proposed construction methods through the meeting of many minds on a professional plane. The tests conducted at the Watertown, Mass., Arsenal in the 80's and more recent tests at university laboratories, the Underwriters Laboratories, the National Bureau of Standards and other laboratories have supplied the facts without which rational determination of safety requirements would be difficult if not impossible. Anyone who examines modern building codes must be impressed by the fact that they are increasingly a series of references to national standards of professional and technical organizations and that these standards in turn have their roots in much testing and research that has been carried out patiently over a period of years.

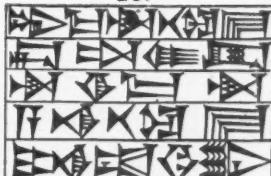
As early as 1905 a recommended building code was issued by the National Board of Fire Underwriters. It had considerable influence and this has been retained by the successive editions that have appeared. Its appearance gave support to a conviction that was gaining strength in the minds of those who had given thought to the subject—namely that there was a field of usefulness for basic recommendations prepared for general use throughout the country.

Increasing criticism of building regulations,

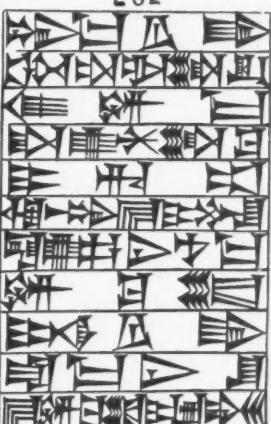
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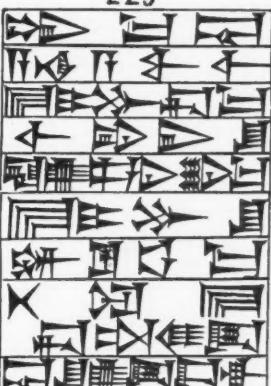
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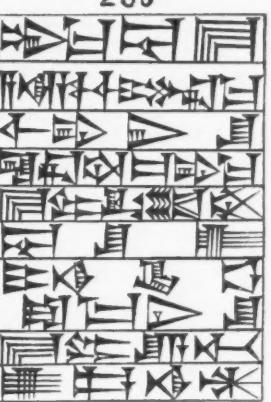
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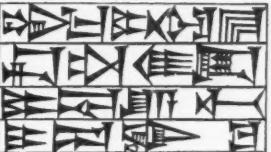
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King Hammurabi's Building Code

particularly in the lag between accumulation of test results and their practical application, resulted in definite steps for improvement on a national scale soon after the World War. The depression of the early 20's was the occasion for much intensive study of factors entering into the operations of the building industry. Prominent among the investigations then carried on was one by the Senate Committee on Reconstruction and Production which was appointed in 1920. This committee covered a wide range of economic conditions, but was specially interested in construction. After extensive hearings it expressed the following view:

"The building codes of this country have not been developed upon scientific data but rather on compromise; they are not uniform in practice and in many instances involve an additional cost

of construction without assuring more useful or more durable buildings."

Positive action resulted. A committee known as the Department of Commerce Building Code Committee and composed of seven nationally known architects and engineers was formed to consider the situation and to bring forth definite recommended requirements that could be utilized in preparing local codes. For 13 years this committee, working closely with the National Bureau of Standards, which published its recommendations, was the recognized central source of information on the subject. Altogether it issued eight reports dealing with various matters found in building codes and these reports were widely used as the basis for local legislation.

Meantime, in 1923, the Pacific Coast Building Officials' Conference had taken up the matter of preparing a complete recommended code and had carried this forward to successful completion in 1927.

This year there has appeared another code prepared by building officials and recommended for the northeastern area of the country, the Recommended Uniform Building Code of the New England Building Officials' Conference. Like the Pacific Coast code (and based to a large extent on the Pacific Coast work) it is the product of many months of intensive study and may be expected to exert much influence in the New England area.

Still another recommended code is taking form under the joint sponsorship of the Conference of Mayors and Other Municipal Officials of the State of New York and of the New York State Depart-

ment of Labor. It is intended primarily for use by municipalities within the state but may have a wider sphere of influence.

Contemporary history presents the interesting question whether it will be possible to weld the best features of work already done into a truly national structure of requirements that will make proper allowance for modifications deemed essential because of local peculiarities in a large country such as ours. The possibilities of national basic standards are being explored by sectional committees of the American Standards Association operating under the guidance of a Building Code Correlating Committee. In view of the success of such nationally recognized codes as those dealing with elevators and electrical work, it would seem that these committees have an opportunity to make history in providing a generally acceptable framework of requirements.

As our thoughts go back to the flaming city of London we can recognize a rich heritage of effort on building regulations that has helped to make life safer and healthier today. There have been lapses and mistakes in trying to do the right thing but an honest appraisal would concede that there has been substantial progress. Although there are still differences in requirements that appear to be unnecessary, the accomplishments of the past provide the hope that these differences will be whittled down until only those with some substantial basis in reason remain. The open mind the scientific attitude, the sense of responsibility that is an inescapable part of any such work, will continue to function in the public interest.

National Bureau of Standards Works on Specifications for Heptane and Isooctane

The investigations being carried on by the National Bureau of Standards for the development of specifications for normal heptane and for isooctane are reported in detail by Donald B. Brooks, Robetta B. Cleaton, and Frank H. Carter who are conducting the work, in the *Journal of Research* (RP1027), September.

Normal heptane and isooctane (2, 2, 4-trimethylpentane) are used as primary standards of reference for the knock rating of automotive fuels and the work is being done at the National Bureau of Standards as the result of a request from the Cooperative Fuel Research Committee.

In carrying out the investigation of the isooctane, over 20 isoparaffins were obtained in a relatively pure state, says the *Technical News Bulletin*, which calls attention to the complete report published in the *Journal*. Some of these compounds have not been described previously, and

several others are decidedly purer than previous preparations.

The materials were isolated by fractional distillation through columns packed with locket chain and having an efficiency of about 60 plates, and were purified by low-temperature crystallization.

In measuring the physical properties, care was taken to obtain the highest accuracy on materials of high purity. The properties measured included in most cases the boiling point, freezing point, density, refractive index, American Society for Testing Materials' octane number, the coefficients of variations of refractive index and density with temperature, and the coefficient of variation of boiling point with pressure.

Copies of the *Journal of Research* may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C.

Good Bedding— Foundation for Comfort and Health

Information on type and quality of filling materials helps intelligent buying, consumers and retailers say—

Recommend standard labels

To protect the consumer from second-hand filling material for bedding and from false labeling of contents, three separate groups—consumers, retailers, and state enforcement officials—are proposing the development of adequate standards through the American Standards Association.

Standards, which would give consumers the information they need about the construction, inspection, and labeling of bedding, are equally a concern of the retailer, the manufacturer, the consumer, and, from a public-health point of view, the state.

Only a few states today have laws requiring inspection and labeling to identify bedding made of second-hand material, and to assure cleanliness when such material is used; and fewer still have provisions for labeling the quality of materials. Even the present labels, when acceptable in one state, frequently do not give the information required in another.

If a consumer in New York requires certain information about the cleanliness of bedding, a consumer in Connecticut or Massachusetts will, logically, require similar protection.

The problem is to find the standard requirements that will enable consumers in all 48 states to assure themselves of the quality, durability, and cleanliness of the bedding they buy.

Ask ASA to Help

Consumers and retailers, working through their national organizations represented on the ASA Advisory Committee for Ultimate Consumer Goods, have asked the American Standards Association to help solve this problem, similar in

many respects to the safety code work already undertaken by the ASA. This ASA safety code program is today providing the backbone of industrial regulations in 25 of the 34 states having such regulations.

In connection with this, consumer and retailer groups have requested the American Standards Association to publish existing information so that their own members can be better informed about the work. The first step seems to be to find out how consumers are being protected now in the various states. The following article by J. Davis Donovan, president of the National Association of Bedding and Upholstery Law Enforcement Officials, tells what state bedding officials are doing to protect the consumer from fraud and from un-

The beginning of an inner-spring mattress

Courtesy Simmons Company



sanitary conditions and to bring about uniformity in state regulations.

The next step will be for a technical committee, including in its membership representatives of bedding and upholstery manufacturers, retailers,

state officials, and consumers, to analyze the type of information needed by consumers, and to develop definite standards for quality, inspection, and labeling of bedding that will protect and satisfy all groups.

National Bedding Standards—

To Protect Against Disease and Fraud

by

J. Davis Donovan¹

*President, National Association
of Bedding and Upholstery Law
Enforcement Officials*

**Seventeen states and District
of Columbia regulate sale of
bedding**

**Need national standards to
eliminate confusion**

**Consumer should have voice
with manufacturer, retailer,
and regulatory officials**

LAWS regulating the manufacture and sale of bedding, upholstered furniture, and similar articles are desirable for three reasons:

1. To protect the purchaser from fraud.
2. To protect the honest manufacturer from unfair competition.
3. To prevent the spread of disease.

Their relative importance depends on the point of view.

The first laws of this sort were enacted about

¹Chief, Division of Legal Administration, Maryland Department of Health.

1900 (in Maryland in 1906). Most were poorly drawn and even more poorly enforced. Manufacturers of bedding and related articles insisted upon action, however, and in 1922, Pennsylvania passed the first of the modern laws. In accordance with this law, manufacturers, by paying a special tax, provided funds for inspection and enforcement. The idea was adopted by other states. Now, over \$300,000 a year is being paid for these purposes, by manufacturers, to 12 states having such laws. Not all of this is actually used for inspection and enforcement, however.

Before these laws were passed, cotton from dis-



The mattress takes shape

carded articles, picked up from alleys and dumps, was reworked, put into a new tick, and a new mattress was the result. "Down" pillows often contained only crushed chicken feathers. Dining room and bedroom chairs were padded with ground-up bale covers, which had outlived their original purpose. Old sweaters and stockings were reworked and became "Lambs Wool" filling for comfortables. "Hair"-filled living room furniture contained dyed vegetable fibres.

Reputable manufacturers were forced to use these materials because of the price competition of others who had no scruples. Few industries offered the "chiseler" greater opportunities for success.

Shortly after the Maryland Law became effective, 19 out of 25 pillows examined in one month, bearing labels stating they contained down or goose feathers, or both, were found to contain greatly inferior filling material or second-hand feathers. These conditions still exist in states having no laws or inadequate enforcement.

How Laws Are Enforced

The chart on pages 298 and 299 shows some of the details of the laws of those states and cities where they are more or less actively enforced. Other states have laws, but no money or personnel for enforcement. The type of article covered by each law is also shown on the chart, as are some other details of interest.

The final stages. From here on the consumer must depend on the word of the manufacturer and merchant as to what he is getting. State bedding officials, retailers, and consumers all recommend standard labels to help eliminate confusion.

Generally, these statutes require the manufacturer of articles coming within their provision to attach to each a tag. On this tag, he must show plainly the kind of material used for filling and whether it is new or secondhand. Percentages or weights are often required in such statements. A penalty is provided for misleading or false statements.

The enforcement of these laws is obtained by having trained inspectors visit factories, warehouses, and retail stores. They see that tags are properly attached, and the contents accurately described. They open and inspect the filling, bring samples to the administrative office for complete analysis and recording. Sale of any item improperly tagged is prohibited. Local violators are prosecuted, while those from out of the state have their goods shipped back to them.

State after state, and a few cities, adopted regulatory measures until now there are seventeen states having laws on these subjects, and an Act of Congress, which covers the District of Columbia. Two large cities also have passed and are enforcing ordinances.

Although each has the same fundamental purposes, many different interpretations have been

placed upon them. The size, shape, and color of tags varies in adjoining states. Materials required to be described one way in some states are not permitted to be described that way in another. As no precedents for testing materials had been established, each state worked out its own method of making analyses, and the same cotton which was new "there" was classed as secondhand "here." The result is increasing confusion of manufacturers who attempt to comply with the many varying, and often conflicting, rulings. Inspectors and administrative officials often find themselves involved in efforts to eliminate purely technical problems, and the dishonest fellow has that much better chance to get by without detection.

Manufacturers and dealers naturally expect, and are entitled to obtain, some degree of uniformity in laws concerning the products they handle, and in their enforcement, particularly in the requirements as to tags, descriptions of filling

materials, and methods of analyzing and reporting upon samples.

About a year ago, a group of officials from several states formed the National Association of Bedding and Upholstery Law Enforcement Officials. All persons connected with the enforcement of these laws were invited to join. Some of the objects of this Association are:

1. Uniform legislation in those states now having laws, and the adoption of substantially similar laws in other communities, when such future action may seem desirable.
2. Uniformity in administration and interpretation. This would include the recognition of a standard tag for all articles containing new materials and standard descriptions of materials on the tags.
3. Standardizing methods of taking samples for testing; standardizing analytical methods used in the various laboratories and the way in which laboratory reports would be made.

This Association has also set up a method of exchanging information as to new ideas in administration, and on the detection of violators.

States and cities actively enforcing bedding regulations,

Our progress will, of course, be slow. Change in personnel is more rapid than in ordinary business. To many of the officials, the bedding and upholstery laws are recently added duties, having no relation to a job which already keeps them busy. Many have no funds for enforcement, and are unable to travel long distances to attend meetings. That some progress can be made is already proven. A standard tag has been proposed and accepted by 16 states and 2 cities. It will not be accepted by 9 and the District of Columbia.

Saves Time

While the benefits from simplification of the present situation must be apparent to any manufacturer whose business extends beyond the limits of his own state, the amount of time that could be saved, with its correspondence, inspections, re-inspections, off-sale orders and releases, must be even more obvious to any enforcing official.

Uniformity Needed

The National Association of Bedding and Upholstery Law Enforcement Officials recommends:

1. Uniform legislation in those states now having laws, and the adoption of similar laws in other communities.

2. Uniformity in administration and interpretation. This would include the recognition of a standard tag for all articles containing new materials and standard descriptions of materials.

3. Standardizing methods of taking samples for testing; standardizing analytical methods used in the various laboratories and the way in which laboratory reports would be made.

what the regulations cover, and how they are enforced

Vendor's Name on Tag?	Sterilization Required?	Enforcement Supported by	Average Annual Income from Fees, Stamps, etc.	Average Annual Expenditure for Enforcement	No. of Employees		Type of Enforcement	Samples Collected?	Samples Analyzed?
					Full Time	Part Time			
California	Yes	Licenses	\$62,000	\$55,000	20	2	Constant	Yes	Yes
Connecticut	Yes	Permits - Stamps	18,000	12,000	5	2	Constant	Yes	Yes
Delaware	Yes	Permits - Stamps	1,070	—	—	1	Periodical	Yes	No
Georgia	Yes	Stamps - Licenses	10,000	7,500	2	1	Constant	Yes	Yes
Illinois	No	Gen. Ap.	—	—	—	40	Constant	Yes	Yes
Iowa	No	Licenses - Gen. Ap.	230	—	—	22	Periodical	No	No
Maryland	Yes	Stamps - Permits	10,000	10,000	4	1	Constant	Yes	Yes
Massachusetts	Yes	Gen. Ap.	—	4,000	1	3	Constant	Yes	Yes
Minnesota	Yes	Gen. Ap.	—	—	0	1	Periodical	Yes	No
Missouri	Yes	Gen. Ap.	—	—	0	11	Constant	No	No
No. Carolina	Yes	Stamps - Permits	9,635	4,161	2	1	Constant	No	No
New York	Yes	Stamps - Permits	160,000	100,000	40	—	Constant	Yes	Yes
Ohio	No	Gen. Ap.	—	—	—	2	Periodical	Yes	No
Oregon	Yes	—	6,540	4,790	1	0	Constant	Yes	Yes
Pennsylvania	Yes	Stamps - Sp. Ap.	55,000	—	15	0	Constant	Yes	Yes
Tennessee	No	Gen. Ap.	—	—	0	5	Constant	Yes	No
Washington	Yes	Spec. Ap.	11,000	6,000	1	0	Constant	Yes	Yes
Dist. of Col.	Yes	Gen. Ap.	—	2,000	1	0	Constant	No	No
Detroit, Mich.	Yes	Permits - Sp. Ap.	1,000	2,500	1	0	Constant	Yes	Yes
Dallas, Tex.	Yes	Permits - Licenses	—	—	—	—	Constant	No	No
Hawaii Ter.	Yes	Gen. Ap.	—	—	0	12	Constant	No	No
Montreal, Can.	Yes	Gen. Ap.	1,500	1,500	1	0	Constant	No	No

SEVENTEEN states and two cities have agreed to accept this tag as complying with their laws regulating the sale of bedding, furniture, and related articles.

These states and cities are:

Connecticut	Massachusetts
Delaware	Missouri
Georgia	Montana
Illinois	New Hampshire
Iowa	North Carolina
Kansas	Oklahoma
Kentucky	Pennsylvania
Louisiana	Tennessee
Maryland	City of Dallas, Texas
City of Detroit, Mich.	

**DO NOT REMOVE THIS TAG
UNDER PENALTY OF LAW**

**This Article Contains
All New Material**

Consisting of { *Insert description of filling materials by clearly stamping or printing in English, using boldface type not less than one-eighth inch in height.*

This tag is attached
as required by law as
a certification that
the article is as repre-
sented.

Name of Vendor
Address of Vendor

Name of Manufacturer
Address of Manufacturer

{ In States which require
this information.

The tag outlined above should be not less than two by three inches, except where special permission has been obtained. It should be used only on *new* articles filled with *all new materials*. It should be printed in *black* ink on substantial *white* cloth.

Name and address of manufacturer or vendor must be shown on tags used in Connecticut, Illinois, Iowa, Massachusetts, Missouri, North Carolina, Detroit, and Dallas.

The State of New York requires additional information on its tag, which must be approved as to form and material.

Vermont tags must be three by four inches. California and New Jersey require a different form of tag.

Washington and Oregon issue official tags which must be used.

Minnesota and the District of Columbia tags must carry a reference to their laws.

He would be backed in any action he took by the concerted opinion, openly expressed, of officials of other states; his laboratory methods would be those tested and approved by other states and used in commercial laboratories. There would no longer be any necessity for lengthy letters about how materials should be classified and described. Correspondence and conferences about tags would be practically eliminated. Inspections would proceed more rapidly and with less confusion to the retailer. More samples could be collected and examined, and consequently, better check could be kept on the types and kinds of materials used.

To prepare uniform definitions of materials and standard testing methods properly, the manufacturers, distributors, consumers, and enforcing officials should be consulted, the ideas of each considered and weighed, and an equitable balance reached. To do this satisfactorily to all, it is believed that an outside organization, having no direct interest in any one of these groups, is best equipped to propose something that could be accepted by all. The American Standards Association and the National Bureau of Standards seem to be the sources from which to request such assistance. Both have had experience along similar lines, and both have under consideration these very problems.

The National Association of Bedding and Upholstery Law Enforcement Officials feel that something should be done, and without delay, in a serious effort to bring some sort of order out of the present chaos, for our own interest, that of the manufacturer and retailer, and also for that of the consumer. Up until this time, the consumer has been represented only by the enforcing agency. The purchaser should also have a say, and one to be considered seriously by all of us.

Need Cooperation

While makers and dealers of articles covered by these laws complain, with much justification, of the difficulties encountered in complying with them, I fail to recall more than one instance in which any concerted action was taken. It is certainly bad policy for one public official to openly criticize another, or in the absence of a request, even to make a suggestion as to how the other should perform his duties. But dealers and consumers in the official's own state should be free to suggest and criticize, and most officials welcome any constructive ideas.

The use of secondhand materials, most of which are filthy or contaminated by persons infected with communicable diseases, should be prohibited. If this cannot be accomplished, they should be thoroughly cleaned and sterilized before being re-used. Definitions of fillings should

clearly indicate to the purchaser the kind of material she is getting. Consumers can demand and obtain action along these lines, and soon acquire information as to relative values.

States which have no laws at present are the dumping grounds for materials which cannot be sold in places where these laws are enforced. When these conditions in a state become so bad they can be tolerated no longer, a law is passed. To prevent present conditions from growing worse, some uniformity must be agreed upon and some standards accepted.

Our Association has expressed itself on these subjects, and has offered to assist in the establishment of all reasonable methods to attain these ends. We ask for the cooperation and active as-

sistance of all other interested groups or individuals in securing speedy results.

Purchasers and users of bedding and upholstered furniture are vitally interested in these subjects. Better laws and more complete enforcement of them decrease the chances that unlabeled articles, or those bearing misleading labels, will be offered for sale. Just as the enforcement of the Pure Food and Drug Laws, with which I have had some experience, has brought about improvement in the quality of such products, so can the enforcement of bedding and upholstered furniture laws increase the value, durability, and desirability to the user of the products which they are intended to control.

"Automotive Industries" Applies Government's Sales Technique

How the Federal Government's technique in selling old horses and mules, referred to in the September issue of *INDUSTRIAL STANDARDIZATION* under the title "Government Sets Standard for Informative Advertising," might be applied to the sale of old automobiles is described in the October 2 issue of *Automotive Industries*:

"Peewee, Dick, Charlie, Bootlegger and Joe are horses and mules which age and the trend toward motorization have made 'surplus property' for the U. S. Army. In advertising them for sale the Army set some standards for truth in advertising which are seldom approached in the used car field.

"Here are the specifications, as advertised:

"Peewee, a mule, approximately 20 years old, tender footed and stiff in the joints.

"Dick, a mule, about 18, weak tendon that causes left hind leg to drag.

"Charlie, also a mule, about 18, windbroken.

"Bootlegger, a horse, 20, 'too fast for ordinary farm work.'

"Joe, a bay horse, 21, tender feet make him lame when used regularly.

"Comparable used-car advertising would possibly seem even more startling and we submit, might read something like this:

"Family Pride, a jalopy driven 142,867 miles. An automobile dealer offered us \$30 for it, as trade-in junk. Maybe it's worth a few dollars more to somebody who isn't particular. It stalls in traffic, is jumpy in low gear, and our youngest daughter refuses to drive it because it unsettles

her finger wave. Pings loudly on anything but premium gas and gets all of 7.21 miles per gallon. Voracious appetite for oil. Sucker bids gratefully received, but positively will not sell to a nervous person."

—

A.S.T.M. Proposes Revision On Six American Standards

Proposed revisions of several American Standards have been approved for publication by the American Society for Testing Materials which as proprietary sponsor has responsibility for revisions for these standards. No definite action on the proposed revisions has been taken.

The standards on which the minor changes have been proposed are:

Standard Specifications for Uncoated Wrought-Iron Sheets (ASA G23-1937; A.S.T.M. A 162-36)

Standard Specifications for Structural Rivet Steel (ASA G21-1936; A.S.T.M. A 141-36)

General Methods of Testing Woven Textile Fabrics (ASA L5-1936; A.S.T.M. D 39-36)

Specifications for Zinc Oxide (ASA K22-1937; A.S.T.M. D 79-24)

Standard Method of Sampling Coal (ASA XI-1921; A.S.T.M. D 21-36)

Standard Methods of Laboratory Sampling and Analysis of Coal and Coke (ASA K18-1937; A.S.T.M. D 271-37)

Details concerning any of the proposed revisions can be obtained from the American Standards Association, or from the American Society for Testing Materials, 260 South Broad Street, Philadelphia.

Research to Determine Exact Value of Electrical Units

INTERNATIONALLY recognized electrical units, as exactly in accordance with mechanical units as science can make them, are being introduced into use through the action of the International Committee on Weights and Measures. They are expected to become effective January 1, 1940.

National laboratories in several countries, such as the National Bureau of Standards in the United States, are now making experiments to determine the absolute values of the electrical units, derived directly from the fundamental mechanical units.

The results of these experiments are being brought together at the International Bureau of Weights and Measures in the form of values assigned to standard cells and ohm standards sent from the national laboratories. In establishing the units on the new basis, the International Committee will consider all such data reported before the end of 1938.

In 1935 the committee issued a table showing the ratios existing between the present International units and the corresponding absolute units, stated to four decimal places. Results of work so far reported now seem to justify an estimate of values carried to five decimal places, according to the *Technical News Bulletin* of the National Bureau of Standards, October. With these new values, manufacturers of high precision standards and others interested can prepare for the change of units. The International Committee, therefore, now gives the following probable relations:

1 Mean International Ohm—1.000 48 Absolute Ohms

1 Mean International Ohm—1.000 48 Absolute Volts

The first of these values appears to be exact to two or three units in the last place given; the second to a few units in that place.

The present "International" units used in different countries are not exactly the same. A Mean International ohm and volt, representing the mean values of the units maintained by six national laboratories, were determined in 1935 by the International Committee. There has been a slight drift of relative values since that time, and as a result of comparisons made in December, 1936, and January, 1937, the International Bureau reports the following departures of the units of the several countries from the mean units as established in 1935.

Departure of National Units from Mean International Ohm and Volt

(In parts per million)

Country	In 1935		In 1936.7	
	Ohm	Volt	Ohm	Volt
France	Adopted mean		+1	+1
Germany	+10	-4	+7	-7
Great Britain	-4	+5	-4	+8
Japan	-11	-2	-10	+1
USSR	+11	+13	0	-6
United States	-6	-12	-4	-10

British Society Standardizes Microscope Fittings

Because of the increasing use of apparatus above the eyepiece in microscopes, the Royal Microscopical Society of London has adopted standard sizes for the external diameter of the eyepiece end of the draw tube and limits for the outside diameter of the eyepiece shoulder.

In 1858 the Society drew up a specification for the screw thread of objective and of nosepiece. This specification was revised in 1896, 1915, and in 1924, and in its final form has been adopted by microscope makers so that microscope objectives of various makers are interchangeable.

SAE to Revise Standard on Springs

The specifications for leaf springs of the Society of Automotive Engineers are to be revised and brought up-to-date with modern practice, according to a recent announcement of the Society. A subdivision on suspension springs under the passenger car division of the SAE Standards Committee will undertake the work.

It is expected that specifications for the coil type of suspension springs used in knee action, and for grooved spring blades will be added to the revised standard, and they are now being studied with this in mind.

ASA Procedure Revised

New provisions intended to speed up and facilitate development of standards

Revision completely rewrites procedure for clarity

by

R. P. Anderson¹

Chairman, ASA Committee on Procedure

REVISION of the procedure of the American Standards Association, accepted by the Standards Council on October 29, contains no radical changes in methods of developing standards. It does, however, include provisions to minimize delays in the work; and the attempt has been made to clarify and simplify the document in order to make it a more useful and effective instrument in the hands of cooperating organizations and committee members.

The new procedure, except for minor revisions in 1931, replaces the one under which the American Standards Association has operated since 1928. It takes care of problems which have arisen in nine years' experience following the organization of the American Standards Association out of the American Engineering Standards Committee.

The principle on which all work of the Association is based is stated in the opening paragraph:

"To provide flexibility in meeting the variety of conditions which obtain in standardization work, several alternative methods are provided. The basic test to be

applied in all cases is the fact of the assent, affirmatively expressed, of the group having substantial concern with the standard. Such groups have an inherent right to representation on the body dealing with the subject-matter of the standard."

Therefore, the procedure makes clear that standards and revisions of standards may come before the Association for approval by any method that provides compliance with these requirements. The following methods are recognized:

- (1). A standard may be developed by a technical committee on which the various organizations concerned are represented by individuals of their own choosing. (*Sectional Committee Method*.)
- (2). A standard of another organization may be approved as an American Standard provided it is shown that the proposed standard is supported by the necessary consensus of those substantially concerned with its scope and provisions. (*Existing Standards Method*.)
- (3). A standard may be developed by means of a conference of the interested groups, supplemented by a sufficiently large number of written acceptances. This is particularly applicable to simple projects. (*General Acceptance Method*.)
- (4). Revision of a standard approved by the Association may be developed by a responsible organization having a position of preeminent importance in the field of the standard. (*Proprietary Standards Method*.)

The principal differences between the new and the old procedure are:

The Sectional Committee Method is to be used in cases where the standard is intended as a mandatory requirement in legislation or in cases where it may be adopted as mandatory rules of regulatory bodies. It was felt that standards of

¹American Petroleum Institute.

this type, including safety codes and building codes and other standards of wide public significance, should be developed by the method affording the widest possible representation of all groups concerned, which is the Sectional Committee Method.

The Sectional Committee Method is to be used in any case in which a substantially interested group so requests in writing.

The tentative stage of approval has been eliminated through discontinuing use of the term Tentative American Standard. This term is no longer considered necessary because standards not complete enough for formal approval are published for a period of trial and criticism, after which they are reviewed and either approved or revised.

The Proprietary Standards Method is recognized as applicable only to the revision of standards already approved (usually under the Existing Standards Method).

Two new provisions are designed primarily to expedite the work. One places a definite time limit for closing letter ballots of sectional committees. The other requires organizations which have the responsibility for developing standardization projects to file semi-annual reports on the status of the work.

A new section summarizes the responsibility of cooperating organizations and their representatives.

Revision of the procedure under which the American Standards Association has worked effectively for so many years has been undertaken only after careful study on the part of a joint committee of the Board and the Standards Council appointed some eighteen months ago. It is believed that cooperating organizations and committee members alike will find the new document simpler to understand and easier to work with than the one it supersedes.

Industry Sets Up Standard Kitchen and Bathroom Colors

That bane of careful housekeepers, the color scheme in kitchen or bathroom which shows several shades of a single color, is on the way out.

Six standard colors for kitchen accessories and seven for bathroom accessories have now been established, through the adoption by the industry of Commercial Standards CS 62-38 and CS 63-38.

White, kitchen green, ivory, delphinium blue, royal blue, and red will be available for kitchen accessories. White, bath green, orchid, ivory, maize, bath blue, and royal blue are the standard colors designed for bathrooms.

Even articles made of different materials by different manufacturers can now match. Standard color samples of the six standard colors are held for reference at the National Bureau of Standards. Duplicate samples are available at \$10.00 per set, and can be used during production to determine whether colors comply with the standards.

In order that the consumer can know whether she is getting accessories with standard colors, the Commercial Standards recommend that articles manufactured to match the standards should be identified by a sticker, tag, or other label attached to the article, carrying the following statement:

"The _____ Company certifies this to be standard color No. SKC—, in accordance with Commercial Standard CS 62-38 issued by the National

Bureau of Standards, of the U. S. Department of Commerce."

An alternate statement is also recommended which may read: "Standard Color No. SKC—, _____ Company."

Standard methods for comparing the colors are described.

It is expected that producers and merchants, as well as consumers, will benefit as the result of the new standards. Unmatching colors have frequently resulted in slow turnover, multiplicity of stock, excessive returns, and obsolescence.

Division of Labor Standards Issues Data on Occupational Diseases

Four new leaflets on occupational disease have been issued by the Division of Labor Standards of the U. S. Department of Labor. These have to do with:

Wood alcohol poisoning
Carbon tetrachloride poisoning
Carbon bisulphide poisoning
Carbon dioxide asphyxiation

The leaflets tell what the disease is, where it is found, how it occurs, its signs and symptoms, what to do, and how to prevent it.

Small quantities of these leaflets are available from the Division of Labor Standards for labor commissioners, labor organizations, and employers.

WPA Requires Protection, Comfort In Workers' Safety Goggles

Four types of goggles used on WPA projects for protection of workers are covered by revised specifications in WPA Safety Bulletin No. 8, recently sent out to all state WPA administrators by W. O. Wheary, Director of Safety. The cup type, spectacle type, and welding and sun goggles are the four which, according to the specifications, shall be so designed and constructed as to give maximum protection as well as comfort to the wearer.

The materials used in the manufacture of these goggles shall be new and unused, suitable for the purpose and of enduring quality, the specifications provide. They shall also be non-irritating to the skin when subjected to perspiration, and all metals used shall be inherently corrosion-resistant.

The construction shall be sufficiently sturdy to withstand rough handling and to stand up under the services for which the articles are intended. All parts shall be smooth and free of sharp edges or any irregularities which may present a potential hazard through cutting or scratching the worker who is wearing the goggles.



WPA tests show how safety goggles protect workers' eyes

A table of visibility and absorption of light to which the lenses of the goggles must comply is included in the specifications, and drop tests to determine breaking quality are specified.

"Candle" Obsolete As Light Unit?

"A curious feature of modern engineering technology is the retention of the horse and the candle as nominal standards of reference for practical units.

"The horse has long been rationalised, and his nominal output has been settled at a figure of 33,000 foot-pounds per minute. True, he is not expected to deliver this output actually, but he is officially connected with the British engineers' system of dynamical units.

"The candle is the nominal standard of reference for all commercial light measurements. Originally a unit of intensity only, the candle is now associated with the ubiquitous 4π constant in the definition of light flux. The candle, like the horse, is a source of energy, but rationalisation of the candle, by defining its nominal output in ergs per second is not easy because the factor of color enters into all luminous measurements. In other words the ultimate character of all luminous phenomena is subjective, so that it is possible to have a light source of considerable energy output by radiation, which gives the subjective impression of low luminosity.

Luminous intensity or light flux could be referred to a standard rate of energy radiation by

a source of monochromatic light defined wavelength. As light standards are easily reproducible, there would be no practical advantage in doing this, but the anomaly of using as a nominal standard in electric lighting measurements a light source which electrical engineering has almost completely abolished is striking."—*Electrical Industries, London, Feb. 24.*

British Issue Specifications For Flexible Steel Conduit

The British Standards Institution has just issued new Standard Specifications for Flexible Steel Conduit for Cable Protection and Flexible Steel Tubing to Enclose Flexible Drives (B.S.S. 731-1937).

The specifications provide for three types of flexible steel tubing suitable for use as a protective conduit for insulated cables, and as a mechanical protection to flexible drives such as those employed in the construction of automobiles. In addition to the standardization of dimensions, the specifications lay down mechanical requirements for the finished conduit or tubing, and prescribe a suitable quality of rubber for use in the manufacture of steel conduit for cable protection.

Copies can be ordered from the American Standards Association.

ASA Needs February, June July Industrial Standardization

February, June, and July copies of *Industrial Standardization* are in demand. Please return to the American Standards Association Library, 29 West 39 Street, any copies of these three issues which are not needed in your office.

Foreign Standards For Sale by ASA

Use serial number when ordering any of the foreign standards listed below. Address a postal card or letter, with name of person to receive the pamphlets, to:

American Standards Association,
29 West 39th Street,
New York, N. Y.

Standards are printed in language of the country under which they are listed.

Germany

- 978. Cylindrical pins
- 979. Relation between cotter pins and taper pins, and the diameter of the bolt or screw
- 980. Cotter pins
- 981. Bright washers for hexagonal screws and nuts
- 982. Rough washers
- 983. Washers made from bright rolled sheet metal for hexagonal screw heads and nuts
- 984. Hammer head bolts
- 985. Safety (plate) washer with catch
- 986. Rough square head bolts without nut
- 987. Rough screws with counter-sunk conical head without nut (formerly called wheel screws)
- 988. Rough bolts with round head with fin without nut to be inserted into metal
- 989. Rough bolts with square neck, without nut, to be sunk into metal
- 990. Typewriter space bar
- 991. Recommendations for key spacing for typewriters
- 992. Arrangement of symbols on typewriter keyboards
- 993. Metric threads, selection from DIN 13
- 994. Standard pressures; nominal pressure, working pressure, test pressure
- 995. Outside dimensions for steel tool cabinets
- 996. Porcelain crockery
- 997. Round screw driver with handle

Great Britain

- 998. Bayonet lamp-caps, lampholders and lampholder plugs for voltages not exceeding 250 volts
- 999. Instrument transformers
- 1000. Coal tar creosote for the preservation of timber (types A, A2, and B)
- 1001. Electrical performance of transformers for power and lighting
- 1002. Glossary of terms used in electrical engineering (1936 edition)
- 1003. Vulcanized fibre (natural color) for electrical purposes

- 1004. Red lead for paints
- 1005. Turpentine (types 1 and 2) and White spirits for paints
- 1006. Cold rolled brass sheets, strip and foil, copper content 64% minimum; 67% maximum
- 1007. Cold rolled brass sheets, strip and foil, copper content within range 68% minimum and 72% maximum
- 1008. Red oxides of iron (natural, manufactured and blended) for paints
- 1009. Fire hose couplings (including screwed outlets for hydrants) suction hose couplings and branch pipes and nozzle connections
- 1010. Pre-cast concrete kerbs, channels and quadrants
- 1011. Short link wrought iron crane chain (excluding pitched or calibrated chain)
- 1012. Analysis of fats
- 1013. The analysis of coal ash and coke ash
- 1014. The ultimate analysis of coal and coke
- 1015. Railway mechanical signalling apparatus
- 1016. Asbestos cement slates and unreinforced flat sheets and corrugated sheets
- 1017. Clinical maximum thermometers
- 1018. Meteorological Thermometers (maximum, minimum and ordinary) sheathed type
- 1019. Oxy-acetylene welding as applied to steel structures
- 1020. Floating dairy thermometers
- 1021. Apparatus and Methods for determining the percentage of fat in milk and milk products by the Gerber method—Parts I and II
- 1022. Rubber gloves for electrical purposes
- 1023. Paper (unvarnished) for electrical purposes
- 1024. Silicon aluminum alloy castings for general engineering purposes
- 1025. Y-alloy castings (as cast) for general engineering purposes
- 1026. Y-alloy castings (heat treated) for general engineering purposes
- 1027. Determination of the agglutinating value of coal
- 1028. Sandstone kerbs, channels, quadrants and setts
- 1029. The testing of mine fans
- 1030. Trailing cables for mining purposes

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Changes in Fuel Oil Standard Postpone Proposed Revision

A proposed revision of Commercial Standard 12-35, Fuel Oils, has been postponed because Technical Committee E appointed by the American Society for Testing Materials believes major changes in the standard to be required, according to an announcement by the Division of Trade Standards, National Bureau of Standards.

The recommended revision of the standard was circulated by the Division on December 14, 1936. Although written acceptances received by the Division satisfy requirements for promulgation, it is believed that the major changes required can be drafted for consideration before next January and for this reason promulgation has been withheld. It is expected that the new revision can be considered approved, and promulgated in time for production of fuel oils for the 1938-39 heating season.

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Plan for Standard Coal Descriptions Proposed by Government Agency

USE of a non-technical uniform description of bituminous coals to enable consumers to know exactly what type of coal they are buying has been recommended to the National Bituminous Coal Commission by its Consumers' Counsel, John Carson. The American Standards for Classification of Coals by Rank and by Grade were recommended for use as the basis for development of such a description. Two standards covering test methods for coal and a third giving definitions of terms relating to coal, developed by the American Society for Testing Materials, were also included in the recommendations.

The proposed plan, which was developed under the authority of the Bituminous Coal Act of 1937, aims to give consumers somewhat the same protection the Pure Food Law gives food consumers, according to the announcement of the plan issued by the Counsel.

The use of standard descriptions for coals provides a common language which gives the buyer more information about the coal he is buying and a better check on what he receives, according to Henry T. Coates, National Association of Purchasing Agents, who testified at the Commission's hearing on the plan. The plan would also help producers reduce their selling costs by assisting them to know which consuming plants their coals suit best. One of the serious problems of industry in buying bituminous coal is the lack of uniformity and completeness in describing coals, the Fuel Committee of the National Association of Purchasing Agents has found, said Mr. Coates. This has led, unintentionally, to misleading information which has been detrimental in the buying of coal as well as in carrying on fair competition among the various coal companies.

Government Uses Standard

Dr. A. C. Fieldner, chief of the Technologic Branch of the U. S. Bureau of Mines, and chairman of the Sectional Committee on Classification of Coals under the procedure of the American Standards Association, testified before the Commission as to the effectiveness of the Ameri-

Use of American Standard classification may help coal buyers, experts testify

can Standards and how they are being used. The U. S. Bureau of Mines is now reporting all of its coal analyses with the designation of the rank of the coal, he said. The standard designations are also being used in relation with purchases of coal by other government agencies, and by the U. S. Geological Survey in correlating coal fields and in their statistics on coal.

The standards provide for definition of type, classification by rank, classification by grade, caking properties, friability, moisture, size, heat content in Btu, percentage of ash and sulphur, and softening temperature of the ash. For example, a complete description of a coal might be as follows: High volatile A Bituminous nut, splint coal 140-A8-F28-S1.0-AG2-FR2-M2. The symbols have the following meaning: 140 refers to the heat content in Btus to the nearest hundred, in this case about 14,000; A8 means that the ash content is between 6.1 and 8.0; F28, that the softening temperature of the ash is about 2800 F; S1.0, the sulphur content is between 0.8 to 1.0 per cent; AG2 means that the agglomerating index is No. 2; FR2 that the friability is No. 2; M2 that the moisture content is not over 2 per cent.

The plan presented by the Consumers' Counsel would require bituminous producers to file with the National Bituminous Coal Commission uniform descriptive specifications of their coal within six months after the Commission orders such action. Producers misrepresenting such specifications would be subject to the penalties set up in the Act for unfair trade practices. Uniform specifications, which would enable the consumer to know what type of coal he is buying and how it is likely to suit his needs, should be furnished

to the consumer, upon request, the Counsel suggested.

It was also proposed that facilities be provided by the Commission, at the request of any consumer, for checking its specifications against the rank and grade specifications forwarded to it. Action would then be instituted against a producer should variations in the two groups of specifications be shown.

The recommendations of the Counsel are now available in a little booklet, *How Much Heat*, published by the Consumers' Counsel. It includes the testimony of both Mr. Coates and Dr. Fieldner and a discussion of the American Standards for Classification of Coals by Rank and Grade, as prepared under the sponsorship of the American Society for Testing Materials, and of related A.S.T.M. standards for test methods. Copies are available from the Superintendent of Documents, Washington, D. C. for 10 cents each.

The paper gives information about color changes, blisters, pitting, loss of granules, cracking, warping, and slippage.

Copies of this document, Research Paper RP-1002, "Accelerated Weathering Tests of Mineral-Surfaced Asphalt Shingles" can be obtained from the Superintendent of Documents, Washington, D. C., at 10 cents each.

A Federal Specification on the same subject, SS-R-521 "Roofing and Shingles: Asphalt, Prepared, Mineral-Surfaced" is also available and can be obtained from the Superintendent of Documents at five cents.

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Committee of Highway Experts To Work on Standard Designs

A committee of twelve outstanding experts in highway engineering has been appointed by the Secretary of Agriculture to work with the U. S. Bureau of Public Roads in developing design standards to help promote traffic safety. It is also expected that the standard designs will help increase the utility of the highways to the maximum.

Research work is being done by the Bureau of Public Roads as an aid to the committee in establishing standards on such matters as road width, maximum grades and curvature, design of multiline highways, protection of grade crossings, and many other problems that enter into highway construction.

The committee members are:

Thomas H. MacDonald, Chief, Bureau of Public Roads, Washington, *Chairman*
C. H. Purcell, State Highway Engineer, Sacramento, Calif.

Ernst Lieberman, Chief Highway Engineer, State Department of Public Works and Buildings, Springfield, Illinois.

Fred Kellam, Design Engineer, State Highway Commission, Indianapolis, Ind.

Hugh Barnes, Chief of Highway Planning, State Highway Commission, Topeka, Kansas.

G. H. Delano, Chief Engineer, State Department of Public Works, Boston, Mass.

O. L. Kipp, Construction Engineer, State Department of Highways, St. Paul, Minn.

Murray D. Van Wagoner, State Highway Commissioner, Lansing, Mich.

Harold W. Giffin, Engineer of Surveys and Plans, State Highway Department, Trenton, N. J.

R. H. Baldock, State Highway Engineer, Salem, Oregon.

P. M. Tebbs, Assistant Chief Engineer, State Department of Highways, Harrisburg, Penn.

Gibb Gilchrist, State Highway Engineer, Austin, Texas.

C. S. Mullen, Chief Engineer, State Department of Highways, Richmond, Virginia.

Textile Federation Studies Silk and Rayon Standards

The National Federation of Textiles, trade association for the silk and rayon industry, announces that it has retained the services of Mr. Harry A. Mereness as Director of Research. The Federation has asked Mr. Mereness to study the field of fabric standardization as related to silk and rayon woven fabrics and to report on the feasibility of quality standards.

Mr. Mereness was previously Technical Director of the Federation for two years and recently textile expert on standardization for the Federal Government in Washington, working on consumers' standards.

He is a graduate of Harvard College and has studied at the Harvard Graduate School of Business Administration. His textile experience includes ten years in the manufacturing and purchasing of raw silk, of which five years were in Japan. He is an active member of the American Society for Testing Materials, has written numerous articles for the textile magazines, and has been active in the field of textile standards.

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Technical Paper on Asphalt Shingles

A technical paper on mineral-surfaced asphalt shingles issued by the National Bureau of Standards is the most recent in the series "Technical Information on Building Materials for Use in the Design of Low-Cost Housing."

Five Revised Standards Change Requirements for Gas Appliances

HIgher efficiency in the heat given off by the top sections of gas stoves, and limitations of the amount of gas used by pilot lights, are now required by the American Gas Association. This is provided in revisions of the standards for domestic gas ranges, hotel and restaurant ranges, water heaters, draft hoods, and semi-rigid tubing and fittings, just approved by the American Standards Association.

The changes in these standards were completed under the program directed by the American Gas Association and carried out by a sectional committee of the ASA. This is one of the programs for consumer goods standards now being brought under the general supervision of the ASA's Advisory Committee on Ultimate Consumer Goods. The standards are used by the American Gas Association Testing Laboratories for its tests on gas-burning appliances. On the results of these tests the AGA bases its decisions as to which appliances and accessories may carry its Seal of Approval.

The new revised standards for domestic gas ranges eliminate the need for definite rating of ovens for use with city gases, and permit any rating provided the oven meets satisfactory performance requirements. A similar standard for ranges used with propane gas has been in effect for about a year. A new standard on oven pre-heating inputs and maintenance rates was also adopted.

Top section thermal efficiency requirements for domestic ranges have been increased for both natural and manufactured city gases, and for propane.

Revised Standards Effective January 1, 1938

Revisions also place limitations on consumption of gas by pilot lights and on the use of aluminum tubing where it is in contact with insulating materials possessing other than a neutral reaction.

The requirements for hotel and restaurant ranges have been correlated with similar provisions of the domestic gas range standards, and with the listing requirements for various accessories. New requirements for the efficiency of open-top ranges in this class have been established, both for ranges used with city gas and for those used with propane. The outstanding change in hotel and restaurant range requirements is the addition of standards for these ranges for use with propane gas and butane-air gas.

Most of the revisions on water-heater standards cover automatic heaters. An added requirement for low recovery units calls for satisfactory combustion with draft hoods removed and plate placed over the flue outlet, to cover the contingency arising from frequent installation of water heaters in kitchen and living quarters in this manner.

All water heaters for use with gases having a specific gravity greater than 1.0 must be equipped with a device which automatically shuts off the gas supply to all main burners and pilots in case the means of ignition becomes ineffective.

Give Lighting Instructions

All heaters must carry detailed instructions for lighting to insure safe lighting of pilot and main burners. If temperature relief valves are provided they must function at a lower temperature than formerly required.

Performance requirements for draft hoods have been entirely revised. Previous requirements were based upon the pressure drop through the hood when preheated air was passed through it at a definite temperature and velocity. The revisions provide two sets of performance requirements—one set governing draft hoods for use with converted central heating equipment, and a second set on draft hoods for use with gas water heaters and with gas converted water heating equipment.

Tests required on draft hoods are identical with the draft hood tests specified in most of the gas appliance standards. A listed gas conversion burner installed in a standard steam boiler is used for testing draft hoods for use with converted central heating equipment; a standard circulating tank water heater is used for testing draft hoods for use with gas water heaters and gas converted water-heating equipment. This change enables manufacturers to duplicate requirements tests in their own factories, whereas the special equipment required heretofore made testing in their own plants impracticable.

The exhibit of a horizontal draft hood in the previous standards has been replaced with a new type horizontal draft hood recently developed at the American Gas Association Testing Laboratories which shows better operating characteristics than the old type horizontal hood.

Exhibits of fittings for semi-rigid tubing have been revised to conform with the 1937 specifications of the Society of Automotive Engineers.

Specifications for tubing dimensions have also been altered to permit manufacturing tolerances in tubing wall thickness. Revised endurance tests on semi-rigid tubing were adopted to give more specific test procedures and to provide tests which would be more consistent with the conditions under which semi-rigid tubing is used in the field.

Copies of the revised standards¹ can be obtained from the American Standards Association or from the American Gas Association Testing Laboratories, 1032 East 62 Street, Cleveland, Ohio.

and is being circulated for comment before final adoption.

The specification provides for two qualities of wire, Standard (Type A) and Second (Type B). The difference between the two types is in the comparative thickness of the galvanized coating, Type A being the more heavily coated and having the longer life.

Ten gauges and three types of wire are covered, consisting of 6, 7, 8, 9, 10, 12, 14, and 16 gauge ordinary wire, and 12½ and 14 gauge in the high-tensile and extra high-tensile grades.

The British Standard method of testing galvanized wire has been adopted without change.

It is expected that after comments have been received and changes in the draft are agreed upon, the final standard will be issued October 1, 1938.

Bureau of Standards Says Cameras Assure Accuracy in Racing Decisions

Standard accuracy in racing decisions is assured when cameras are used as recommended by the National Bureau of Standards, according to an article in the *Technical News Bulletin*, April. Because of newspaper criticism of decisions based on photographs, the New York State Racing Commission asked the Bureau to make an investigation and determine whether or not the use of the camera is leading to incorrect decisions.

The different sources of error were considered and quantitative estimates of the errors made by Dr. Irvine C. Gardner of the Optic Division. As a result, the conclusion has been reached that relatively simple precautions make the camera a suitable instrument for determining the outcome of a race. These precautions have been given adequate attention in the installations which have been examined, according to the *Technical News Bulletin*.

A complete report of Dr. Gardner's findings is published in the *Journal of Research*, April (Research Paper 986). Copies of the *Journal* are available at 25 cents from the Superintendent of Documents, Government Printing Office, Washington, D. C.

Sources for Building Codes Listed in New Document

A new document showing information on sources of material for use in preparing and revising local building codes, prepared jointly by the Building Code Correlating Committee of the American Standards Association and by the National Bureau of Standards, can be obtained from the ASA office.

This material, a revision of a similar document prepared in 1934, was compiled as the result of numerous requests received by the Building Code Correlating Committee of the ASA. With the exception of the reports of the Department of Commerce Building Code Committee which have been accepted by the Correlating Committee as the basis for its work, no opinion on the merits of the existing recommendations have been expressed. The document is a list of source material in the form of a bibliography listed under various headings, such as State Codes, General Building Restrictions, Light and Ventilation, Construction Requirements, etc. Prices of the documents listed are indicated.

The Building Code Correlating Committee expects eventually to have a series of recommendations of its own, prepared by sectional committees on all the subjects customarily covered in building codes.

The extent to which the material listed in this bibliography should be incorporated in codes is a matter for the judgment of officials or committees undertaking the local work.

The document, "Information on Sources of Material for Use in Preparing and Revising Local Building Codes," can be obtained from the American Standards Association, without charge.

New Zealand Proposes Standard for Fencing Wire

A proposed standard specification for galvanized (zinc-coated) steel fencing wire has been issued by the New Zealand Standards Institute

¹Approval Requirements for Domestic Gas Ranges (Z21.1-1937); Approval Requirements for Gas Water Heaters (Z21.10-1937) 40 cents; Approval Requirements for Hotel and Restaurant Ranges (Z21.3-1937) 40 cents; Listing Requirements for Draft Hoods (Z21.12-1937) 30 cents; Listing Requirements for Semi-Rigid Gas Appliance Tubing and Fittings (Z21.24-1937) 30 cents.

National Bureau of Standards Serves Ultimate Consumer

Research and standardization projects being developed by the National Bureau of Standards range from automobiles and window glass to carbon paper, dry ice, and garden hose. In a recently published booklet, *Services of the National Bureau of Standards to the Consumer*, descriptions of tests and investigations are given on numerous items of interest to the ultimate consumer.

The booklet tells about Federal Specifications, basis for all of the buying of the Federal Government, and explains the Simplified Practice Recommendations and Commercial Standards, developed with the cooperation of interested trade associations and consumer organizations. Tests on 43 different products in this booklet show performance and wearability of these consumer goods, and frequently are used as background material for the development of standards.

In order that any one interested may have access to all the Government publications on each of these subjects, the names, identifying numbers, and prices of these pamphlets are listed.

Copies of the *Services of the National Bureau of Standards to the Consumer* are available from the National Bureau of Standards, Washington, D. C., without charge.



Testing Clinical (Fever) Thermometers

"Fever thermometers" are checked against standards of the National Bureau of Standards in a temperature-controlled bath as shown in the picture. Fever thermometers are mounted on racks as shown and individually checked for appearance as well as performance. They must meet requirements for accuracy, ability to hold readings, and ease in shaking down. Those meeting the requirements are certified and marked to indicate this fact.

British Paper Makers Seek Standard Colors

The British Paper Makers Association and the British Federation of Master Printers' Technical Committee are conferring on the possibility of standardizing paper shades for photogravure work. The paper makers believe that there would be less likelihood of overmakes of photogravure papers if an agreement could be reached on the standardization of the shades of paper. The Technical Committee has requested the P.M.A. to submit detailed proposals for standardization and samples of suggested papers.

Architectural Forum Presents Standard Housing Design

Modular planning, a standard system of design based on multiples of a common denominator dimension, has been used in preparing a standard housing design by the *Architectural Forum*. This system they hope may be applicable to the structural systems now in use—wood frame, brick veneer, brick, and concrete block.

Refinishers Request Standard For Shrinkage of Woolen Fabrics

The Textile Refinishers Association, Inc., has requested the cooperation of the National Bureau of Standards in establishing a Commercial Standard for Shrinkage of Woolen Fabrics.

It is expected that the project will include the maximum residual shrinkage permissible if the fabric carries any indication that it has been shrunk, methods of test, marking and labeling.

American Standard Prevents Eye Injuries¹

In one of the largest industrial states, during a recent three-year period, there were 7,690 industrial eye injuries for which \$4,548,887 was paid in compensation. Thirty-three of these injuries resulted in death or permanent total disability, and 2,021 in permanent partial disability.

The majority of eye injuries can be prevented by the proper use of suitable goggles.

The American Standard Safety Code for Heads, Eyes and Respiratory Organs, formulated by a national committee of experts working under the procedure of the American Standards Association, is recognized as the best standard on this subject.

In determining whether goggles should be worn the question should not be decided negatively simply because an eye accident has not occurred under certain circumstances. Instead, the question should be asked, "CAN an eye be injured on this job?" After it has been decided that goggles should be worn an order should be issued by the executive head of the company, stating the facts and specifying what types of goggles are to be used. When such an order has been issued, it must be rigidly enforced if compliance with the order is to be expected.

The purpose and importance of wearing goggles should be explained to the men. Instances where the use of goggles has saved the sight of fellow workers or of workers in other plants

should be referred to. Where possible, reference is sometimes made in the company's magazine to causes of eye accidents, their number and how such accidents may be prevented.

In one large plant, after an order was issued that goggles were to be worn in certain places and during certain operations, all supervisors, regardless of their position in the organization, the safety man and all visitors to that plant were required to wear goggles in compliance with the order. Little, if any, difficulty has been experienced in that plant in having the goggle rule obeyed, because the supervisors and others have convinced the men by their example that the order was issued in the best interests of all. In the above mentioned plant the eyes of three supervisors were saved because they were wearing goggles at the time of an accident.

The supervisor of a department should see that each man is provided with a pair of goggles suited to his work and a carrying case for his individual use. Care must be exercised that the goggles fit the man properly. Considerable time will often be necessary to secure the highest degree of comfort and adjustment to facial contour, but many shops have found this time well spent in order to obtain the best results. After the goggles are fitted many shops carefully instruct the man how to wear them to secure the best protection with maximum comfort.

Standard Language Needed For Exactness in Writing

"The preparation of specifications is a good example of the need for exactness in writing. Repeatedly, trouble develops from their indefiniteness, or from misinterpretation of them."

"One case centered upon one short descriptive phrase of four words which the contractor claimed meant something entirely different from the intention of the author. The dispute was finally settled with a loss of about \$75,000 to the owner."—From "English in Engineering Education," by C. W. Dunham, Port of New York Authority. "Electrical Engineering," April, 1937.

Revision Adds New Dimensions In Adhesive Plaster Recommendation

A revision of the Simplified Practice Recommendation R85-28 Adhesive Plaster, has been approved by the Standing Committee in charge, according to a recent announcement of the Division of Simplified Practice, National Bureau of Standards. Copies are being mailed to all interests for consideration and approval.

The revision eliminates the 7 in. x 1 yard plaster in rolls which is in small demand, and adds a 12 in. x 10 yard hospital roll supplied uncut, and in equal and assorted cuts.

The original recommendation, approved in 1928, established a simplified schedule of widths and lengths of adhesive in rolls and on spools.

Copies of the proposed revision may be obtained from the Division of Simplified Practice, National Bureau of Standards, Washington, D. C.

¹Abstract from *American Machinist*, May 5.

American Standards Association Is Service Organization

"It has become clear in the course of our connection with it that the American Standards Association does act as a service organization of the highest order. It provides standards made by and acceptable to industry where standards are needed, without limiting in the slightest degree the special designs or materials required for the proper working of an individual industry."—
Ralph E. Flanders, president, Jones & Lamson Machine Company.



Ralph E. Flanders

International Committee to Establish New System of Photometric Units

A new system of photometric units, to be derived from a primary standard proposed and developed by the National Bureau of Standards, and which will supersede the two systems of units now used in different countries, will be established by the International Committee on Weights and Measures. This change, which was decided upon at the Committee's biennial meeting at Sevres and Paris, France, in June, will take effect January 1, 1940.

The standard from which the units will be derived is a black-body radiator operated at the temperature of freezing platinum of specified purity. The magnitude of the units in the new system will be fixed by taking the brightness of the primary standard as exactly 60 candles per square centimeter.

For sources of light differing in color from the primary standard, the photometric values will be determined by methods based upon the spectral luminosity factors (formerly called visibility factors) established at the Bureau in 1923 and since then adopted by various national and international bodies. For the immediate purpose of calibrating incandescent lamps or secondary standards at temperatures above that of the primary standard, use will be made of blue filters which have been chosen to produce a color match in the photometric field when they are interposed between the photo-

meter and the standard operating at the lower temperature.

In order to insure uniformity between countries in setting up the new standards, groups of lamps of each general type will be prepared by each national laboratory and sent to the National Physical Laboratory of Great Britain for comparison.

The units to be established will be called the "new candle," "new lumen," etc., with appropriate translation into other languages, in the expectation that after a few years the adjective "new" will be dropped in ordinary use of the terms.

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Austrian Petroleum Institute Publishes Book on Standards

The Austrian Petroleum Institute recently published Erich Molnar's *Erdöl-Untersuchungsmethoden*, a book describing the standard methods of testing petroleum products in 22 countries.

The book is divided into four sections dealing respectively with gasoline, kerosene, gas oil, and lubricating oil, and contains 13 folding tables which show in detail the great variety of methods used to ascertain the characteristics of petroleum.

Copies of *Erdöl-Untersuchungsmethoden* may be ordered through the American Standards Association.

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Nebraska }
Ohio }
Oklahoma }
Oregon } use it as a basis for industrial regulations

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